production of indispensable colours, and to prevent waste of energy and material on the manufacture of the less important of these products. We now learn from a report issued by the Commissioner for Dyes (Sir Evan D. Jones) that an attempt in this direction was made so early as September, 1914, by a committee of the Society of Dyers and Colourists. This attempt, however, was not successful in securing the information so desirable in the interests of both manufacturers and users.

Nothing further was done until 1916, when an influential committee was formed, and, after a number of meetings at the Board of Trade, a list of the necessary dyestuffs was drawn up. The committee was at that time unable to make any progress in allocating the manufacture of these dyestuffs among British manufacturers. Many changes have, however, taken place since that time, and such movements as the amalgamation of Levinstein's with "British Dyes" is a step which must have facilitated progress towards this very desirable understanding among manufacturers. On the appointment of the Commissioner in June, 1917, a renewed effort was made to compile a census, and, with the assistance of Mr. W. E. Kay, representing the Calico Printers' Association, Ltd.; Mr. Christopher Rawson, of the British Cotton and Wool Dyers' Association, Ltd.; Mr. Thorp Whitaker, of the Bradford Dyers' Association, Ltd.; and Mr. Ernest Bentz, of the English Sewing Cotton Co., Ltd., this has now been done.

The report (dated November 1, 1918) shows the quantities of synthetic dyestuffs imported into this country during the year 1913. These statistics have been prepared from returns supplied by the representatives of the importing firms, and agree substantially with the figures for the total imports into this country during that year. The census has been compiled from the dyer's point of view rather than from that of the dye manufacturer, and the dyes have been classified according to their dyeing qualities, and not according to their chemical constitution. The difficulties of classification have been considerable, owing to the variety of distinctive names and the fact that many of the colours are mixtures. The accuracy of the amounts stated varies in certain cases, and as regards some colours the figures understate the actual colour consumption in the country. This necessarily arises from the fact that the list gives the importations for one year only, and more accurate figures could not be secured except by taking the average of a series of years.

The summary shows that in 1913 the total weight of dyestuffs imported amounted to 40,071,368 lb. The great majority came from Germany. Switzerland supplied important, though relatively small, amounts of dyes of all colours. These are, however, not shown in detail, as the facts were supplied in confidence by Swiss manufacturers, and the totals of each class can alone be given.

Section xii. contains an interesting list of intermediate products, such as naphthols, naphthylamines, the nitranilines, phenylglycine, resorcine, etc., which are not dyes, but are necessary to the production of dyes, as well as other products.

It is hoped that the census will serve among other things as a useful guide in estimating the requirements of the colour-using industries, and form a basis for determining the capacity of plant which it may be necessary to erect. In the present census about 10,000 colours are enumerated, but these do not represent nearly so large a number of individual colouring matters.

NOTES.

AN expedition left this country recently, under the auspices of the Royal Society, to make a scientific survey of the pastoral peoples in East Central Africa. It is hoped that a more careful study of the social and economic conditions of these people will add considerably to science, while a more accurate knowledge of their physical conditions, mental abilities, and relationship to each other will enable those concerned to develop them so that they may become useful and profitable members of the Empire. The tribes to be visited are the Gallas near Mombasa, the Kikuyu and Masai at Nairobi, the Ziba and Watuturu near Bukoba on the west and south-west of Lake Victoria, the Bahima of Ankole, the Banyoro, the Bagesu on Mount Elgon, and the Gallas on the frontier of Abyssinia. Then, following the Nile to Khartoum, it is proposed to see as many Nilotic tribes as possible, paying especial attention to the Banyuli and Badamu. The expedition is under the direction of the Rev. John Roscoe, rector of Ovington, formerly for many years C.M.S. missionary in Uganda. Mr. Roscoe sailed in the s.s. *Clan Menzie* on April 15, and will be away for at least a year. The funds for the expedition have been provided by the generosity of Mr. P. J. Mackie, of Glenreasdell. The Royal Society was asked to undertake the administration of Mr. Mackie's gift, and appointed a committee to control the expedition with Prof. A. Keith as chairman.

THE retiring president of the Chemical Society recently described to the members how British chemists had managed greatly to outstrip German chemists in the technical preparation of "mustard gas," which is obtained by the interaction of ethylene and sulphur chloride. The method devised was communicated to our Allies in France and in America. An article on the United States Chemical Warfare Service, appearing in the *Scientific American* for March 29, shows what was being done in that country as regards this and other "poison gases" when active hostilities ceased last November. During the winter of 1917–18, as a result of the growing importance of gas warfare and of the representations made by British and French officials, the United States authorities decided to erect a very large chlorine plant. The site selected was largely farm land under cultivation, so that housing accommodation had to be erected and transport facilities provided before a start could be made. By July the chlorine plant, designed to produce 100 tons per day, was ready to deliver chlorine, but the chemical installation for working the gas up was not so far advanced, and did not begin operations until September. Nevertheless, at the close of hostilities the staff had developed the gas-making facilities at such a rate that they could produce more than 100 tons of "poison gas" daily, and, but for the armistice, that quantity would have been doubled by the beginning of the present year. What this would have meant may be understood when it is stated that the total output of "poison gas" from the German factories was only thirty tons per day. Indeed, as regards the "mustard gas" itself, it has been learned since the armistice that the largest daily quantity the enemy could manufacture was from six to eight tons, or only about one-fourth of the amount which the American chemists alone were producing in November.

The Right Hon. Sir John H. A. Macdonald (Lord Kinsburgh), F.R.S., who died at Edinburgh on May 9 in his eighty-third year, was keenly interested in science, and joined the Institution of Electrical Engineers shortly after its foundation. He was educated at the Universities of Edinburgh and Basle. Called to the Scottish Bar in 1859, Sir John Macdonald soon obtained considerable success in his profession, and during a long and distinguished public career filled many important positions. He held the office of Solicitor-General for Scotland during the years 1876–80, and four years later became Lord Advocate. Whilst holding the latter office he sat in Parliament as Member for Edinburgh and St. Andrews Universities (1885–88), and carried through the House of Commons an Act which introduced considerable reforms in Scottish criminal administration. In 1888 Sir John Macdonald was appointed Lord Justice-Clerk of Scotland and Lord President of the Second Division of the Court of Session, an office which he held until 1915. Early in his career he interested himself actively in the Volunteer Force, and served in it for many years, during which he continuously and persistently strove to bring about reforms in drill and tactics; eventually the majority of his suggestions were adopted by the military authorities. Sir John published numerous books and other works on matters relating to electricity, law, and tactics, and many medals and diplomas were awarded to him in connection with his life-saving and electrical inventions.

A large and distinguished gathering assembled at the Guildhall on the evening of May 8 at the jubilee banquet of the Iron and Steel Institute, founded in 1869. M. Eugène Schneider, the president, occupied the chair, and read messages from the King and the Prince of Wales wishing prosperity to the institute. In proposing the toast of "Peace, Progress, and Prosperity," the president referred to the moral situation of the Allied nations, especially the British and French, who were bearing on their shoulders the main burden of peace. He said that the task of men of good will was made more difficult by short-sighted folk who imagined that they possessed an infallible nostrum, a special device which held in every case and in every circumstance. The mass of French and British working-men, however, instinctively distrusted "day dreams." They looked forward to a satisfactory social order without revolutionary crises and civil wars. Was the task impossible? Some master-builders would be able to rear a new edifice wherein every tenant would find pleasure to live, provided social problems were dealt with by those who were worthy of the title "leaders of men." Discussing the future relations between employers and employed, the president emphasised that these can be satisfactorily brought about only by educating both classes. Future captains of industry must learn to know their own men, and working-men must be able to judge their employers otherwise than by hearsay. Future engineers must include in their training a few months' probation in the workshops as ordinary working-men, and not lose the benefit of mingling with them.

The U.S. National Academy of Sciences held a very successful annual meeting at Washington on April 28–30. Many of the subjects discussed dealt with the war, while other papers presented recent developments in pure and applied science. The academy is the scientific adviser of the United States Government, co-operating with the different Departments and Bureaux in the execution of the more practical developments. Another function is the representation of the United States by academy members in international affairs, some of the members having served as foreign scientific attachés in Europe during the war. The most important of the allied branches of the academy is the National Research Council, which body has carried on some very valuable work for the War and Navy Departments, particularly relating to submarine defence, nitrate supply, radio communication, ordnance, wireless control, searchlights, etc., features of which were described during the recent meeting. At the annual dinner of the academy, held on April 29, gold medals were presented to Prince Albert of Monaco and Prof. Charles Fabry, of the University of Marseilles, for their contributions to the advance of science. Dr. Charles D. Walcott, president of the academy, made the presentations. The award of the Henry Draper gold medal to Prof. Fabry was made for his notable investigations in the science of astronomical physics, particularly his researches in connection with the light of the sun and other astral bodies; while the original contributions of Prince Albert of Monaco on oceanography received the highest recognition of the academy in the form of the Alexander Agassiz gold medal, established through funds provided by Sir John Murray. This is the second award of the Agassiz medal, the first having been presented to Dr. Johan Hjort, of Bergen.

A new American Arctic expedition proposes to start in a few weeks to explore the untraversed part of the Arctic Ocean between Bering Strait and the North Pole. The expedition, which was postponed a few years ago, is to be under the leadership of Capt. R. A. Bartlett, and will be supported by the Aero Club of America. The *Geographical Review* for March (vol. vii., No. 3) gives some details of the plans. Flying bases are to be established at Cape Columbia on Grant Land, at Cape Chelyuskin in Siberia or on Nicholas Land to the north of it, and at Wrangel Island. The expedition will have a large aeroplane capable of making the flight of more than 1100 miles from Cape Chelyuskin to the Pole, and several smaller aeroplanes for shorter flights. The main base of the expedition will be at Etah, in Greenland. In addition to the vessels required to establish the bases, it is proposed to send a small vessel through Bering Strait and force her into the pack in the hope that she will drift across to the European side of the Arctic Ocean, thus emulating Capt. R. Amundsen in his expedition now in progress. Capt. Bartlett's expedition is planned to take three years.

In spite of the chaotic conditions in Russia, a new hydrographical expedition to the seas north of Siberia is being planned by the Russian Hydrographical Department. From *La Géographie* (vol. xxxii., No. 4) we learn that the expedition will be divided into two parts: one under Comdr. Vilkitski will work between the White Sea and Cape Chelyuskin, the other under Comdr. Novopashenni between Cape Chelyuskin and Bering Strait. The coasts are to be surveyed, coastal waters sounded, and ice conditions studied throughout a whole year. It is also proposed to set up several meteorological stations fitted with wireless telegraphy. The sites suggested are at White Island (off Yamal), the north of Novaya Zemlya, Obdorsk, Cape Chelyuskin, the mouths of the Lena and the Kolima, the

New Siberia Islands, and Koliuchin Island. These stations will co-operate with those already existing at Yugor Strait, Cape Mare Sale (Yamal), and Dickson Island (Yenisei). Attention is to be paid to economic conditions and the possibilities of trade.

Sir Edward Sharpey Schafer writes that the remarks made in a note in Nature of May 1, p. 173, with reference to his address on "The Position of Physiology in Medicine" is apt to give the impression that he would favour a plan of allowing the student to see something of hospital work at the commencement of his course. We regret the possibility of this misunderstanding. The suggestion was made as an attempt to remedy the admitted difficulty of convincing the student of the value of physiology. Sir Edward Sharpey Schafer, on the contrary, contends that it is a positive disadvantage to give any premature attention to clinical medicine and surgery; and that it is not only useless for understanding these subjects, but also fatal to the attainment of a proper grasp of physiology, which must, in the first instance, be studied as a pure science. We are glad to have the opportunity of making his position clear.

Prof. G. Elliot Smith has been elected president of the Manchester Literary and Philosophical Society.

The ninth annual May lecture of the Institute of Metals will be delivered by Prof. F. Soddy on "Radioactivity," at Caxton Hall, Caxton Street, Westminster, on Monday, May 19, at 8 p.m.

Sir Napier Shaw has resumed the administrative duties of the directorship of the Meteorological Office, from which he was relieved in May of last year by the appointment of Col. H. G. Lyons to be acting director for the period of the war.

In connection with the fifty-sixth annual meeting of the British Pharmaceutical Conference, which is to be held in London on July 21–24 inclusive, there is to be a memorial lecture as a tribute to the memory of the late Lt.-Col. E. F. Harrison.

We are asked to state that, in compliance with a suggestion by the Ministry of Labour, Appointments Department, the library and reading-room of the Society of Engineers (Incorporated), 17 Victoria Street, Westminster, S.W.1, have been placed at the disposal of officers at present looking out for appointments in the engineering and allied professions. All such officers are also cordially invited to attend the ordinary meetings of the society, particulars of which may be obtained on application to the secretary.

Dr. Ferdinand G. Wiechmann died recently in New York at the age of sixty. He was an instructor in chemistry at Columbia University from 1883 to 1897, since which time he had been mainly occupied as a consulting research chemist. He was a specialist in the chemistry of sugar, and had written largely on that subject.

The Smithsonian Institution at Washington has announced that the studies carried on at Calama, in Chile, and Mount Wilson, in California, with regard to solar radiation and its effect on weather conditions have proved so satisfactory that it contemplates establishing three or four additional observing stations in widely separated and almost cloudless regions, such as Egypt, India, South Africa, and Australia. It is reported that the weather forecasts of the Government of Argentina are now based on observations made at the Calama station.

The death is announced, in his eighty-sixth year, of Prof. Charles Brinckerhoff Richards, who was professor of mechanical engineering at Yale from 1884 to 1909. Prof. Richards was frequently called upon by the American Government as an expert adviser, and in 1889 was U.S. Commissioner to the Paris Exposition to report on all mechanical exhibits. He was made a Chevalier of the Legion of Honour for his invention of the Richards steam-engine indicator. Prof. Richards edited the engineering and other technical words in Webster's International Dictionary.

By the death of Mr. G. M. Apsey on May 3 the Admiralty loses one of its most faithful servants, and the Royal Corps of Naval Constructors one of its best-known and valued officers. A summary of Mr. Apsey's career is given in *Engineering* for May 9. He entered Sheerness Dockyard in 1877, and became a student at the Royal Naval College, Greenwich, in 1882. He was inspecting officer for torpedo-boat destroyers from 1895 to 1902, and became chief constructor at Gibraltar in 1913. He also served at Rosyth and Portsmouth, and joined the Department of the Director of Dockyards in July, 1916. He was in his fifty-sixth year at the time of his death.

The North-East Coast Institution of Engineers and Shipbuilders is to hold a summer meeting at Newcastle-on-Tyne on July 9–11. The following papers have been arranged for:—"Women's Work in Engineering and Shipbuilding during the War," the Hon. Lady Parsons; "Shipbuilding and Marine Engineering done on the North-East Coast during the War," E. L. Orde; "Aviation during the War, and its Possible Future," Lord Weir; "Dazzling of Ships," Lt.-Comdr. Wilkinson; "Limits of Thermal Efficiency in Diesel and other Internal-combustion Engines," Sir Dugald Clerk; "Ship-repairing during the War," M. C. James and L. E. Smith; "Transmission of Power," G. Constantinesco; and a lecture by Prof. J. C. McLennan.

The Home Secretary has appointed a Committee to inquire and report on possible improvements in miners' lamps as regards safety and illumination and alterations which may be desirable in the present methods of testing and approving such lamps for the purposes of Section 33 of the Coal Mines Act, 1911. The Committee consists of Mr. W. Walker (chairman), Prof. F. Edwin Armstrong, Mr. T. G. Davies, Mr. V. Hartshorn, M.P., Mr. G. A. Mitcheson, Mr. S. Roebuck, Mr. J. Wallwork, and Dr. R. V. Wheeler, Director of the Home Office Experimental Station at Eskmeals. Mr. E. G. Fudge is the secretary, and communications on the subject should be addressed to him at the Home Office, Whitehall S.W.1.

Archæologists will welcome the appearance in *L'Anthropologie* (vol. xxix., Nos. 1–2) of another instalment of L'Abbé H. Breuil's valuable accounts of paintings in Spanish caves. He now deals with discoveries made in 1909 in the valley of Bateucas, Salamanca. If these drawings in artistic skill fall short of those already discovered at Altamira, Marsoulas, or La Mourthe, they still possess much interest, including rude figures of human beings, animals, and fish. The question of the age of these paintings is still under discussion, but M. Breuil remarks that it seems difficult to assign the Bateucas frescoes to the Neolithic age in the apparent absence of any monument or object in the vicinity characteristic of that period.

In the *Quarterly Review* for April Dr. R. R. Marett, taking as his text Sir James Frazer's "Folk-lore in the Old Testament," discusses the current modes of interpreting folk-beliefs, and suggests a method more in accordance with the psychology of the folk.

Hitherto folk-lore has been defined as "the study of survivals, a palæontology of human culture," whereas the new philosophy treats it, "not as so much dead matter, but as the outcome of an organic process, namely, of an existing or recently existing folk-life." Despite the vast mass of detailed evidence that lies ready to hand, there has never been attempted a comprehensive description of the mental life of the folk at our doors, much less a general analysis that makes out how and why it is so markedly gregarious in its distinctive manifestations. In other words, tradition must be treated as the live expression of the collective consciousness. And in considering the material we must make due allowance for the fact that lack of meaning may or may not imply loss of meaning. This important paper deserves the attention of all students of popular beliefs.

MR. J. H. GURNEY'S "Ornithological Notes from Norfolk for 1918," in *British Birds* for April, make good reading, for, among other things, he tells us that there is good reason to believe that as many as six pairs of bitterns bred in Norfolk during the spring and summer of 1918. At least five out of these six were reared successfully. The great crested grebe, the gadwall, the shoveller, and the bearded tit are also on the increase as the result of the jealous protection now extended over the area of the Broads district.

WE have received the report of the Director-General of Public Health, New South Wales, for the year ended December 31, 1916. It contains a mass of statistical and other matter concerning the health of the State. It is of interest that the minimal legal standard adopted for the fat in milk is 3·2 per cent., ours being only 3 per cent. As regards research work, a record has been kept of the number and seasonal prevalence of fleas on rats, and an extended investigation has been carried out on dengue fever in Australia—its transmission by certain mosquitoes, the presence of a filterable virus in the disease, and observations on immunity, length of the incubation period, and other clinical features.

THE land planarians of Ceylon have been the subject of considerable attention, but those of India have hitherto been almost entirely neglected, so that records of the latter are rare, incomplete, and uncertain. Prof. R. H. Whitehouse has published (Records Indian Museum, vol. xvi., part 1, January, 1919) a systematic account of Indian land planarians based on specimens in the Indian Museum. Of the seventeen species recorded in this paper, ten (five described as new) belong to the well-known genus Bipalium, five (four new) to Pelmatoplana, and one to each of the genera Dolichoplana and Cotyloplana.

DR. A. G. MAYOR'S report on the Department of Marine Biology of the Carnegie Institution of Washington for the year 1916, which has only recently reached us, contains a record of much work of interest to marine biologists. During a month's stay on the Island of Tobago Dr. Th. Mortensen was able to study the larval development of ten West Indian Echinoderms, the larvæ in several cases being reared through the metamorphosis. The physical conditions at Tobago are described as being unusually good for work of this character. Dr. H. Lyman Clark also describes the location of the Tobago laboratory as being an ideal one for Echinoderm studies. Mr. L. R. Cary gives an account of his studies on the physiology of the nervous system of Cassiopea, and Dr. A. J. Goldfarb describes experiments on the ageing and death of germ-cells, the eggs and sperm of the sea-urchin, *Toxopneustes variegatus*, having been used for the experiments.

Two translations lately received from Sir Robert Hadfield refer to recent developments in Germany. One of these is entitled "The Union of Technical Men," the inaugural meeting of which was held in Berlin fourteen days after the signing of the armistice. Its chief object is to ensure that technologists may bring their influence to bear on the Government, Parliament, and the economic life of the country. To attain this object an endeavour will be made to bring representatives of all branches of technical practice, from the foreman to the technical chief, into one comprehensive organisation. More than two thousand technical men attended the inaugural meeting, and papers were read by Siegfried Hartmann and Engineer Genest. The other document is a translation of an address by Herr Krupp von Bohlen on "Co-operation and Profit-sharing." In this address the lecturer dealt with a number of problems relating to the co-operation of workers in the undertaking and profit-sharing, and intimated that many changes would have to be made in the firm to keep pace with the present trend of the times with a view to continued development on sound lines.

IN a paper read before the Washington Academy of Sciences in June, which is reproduced in the Monthly Weather Review of the United States Weather Bureau for October, Prof. W. S. Franklin, of the Massachusetts Institute of Technology, directs attention to a much-needed change of emphasis in meteorological research. Hitherto it has mostly been occupied too exclusively in averaging large collections of observations, when a more detailed study of the movements of individual storms, and the determination of the correlation between storms of the same type on successive days, would be of much greater service in weather prediction. Prof. Franklin believes that such an intensive study of weather conditions would establish the conclusion that at certain critical times in the life-history of a storm the expenditure of a very moderate amount of energy would enable the subsequent movement of the storm to be controlled.

THE following books of scientific interest are announced for publication in the near future:—"The School Gardener," J. Norris (*Cassell and Co., Ltd.*); "Psycho-Analysis and its Place in Life," M. K. Bradby (*Henry Frowde and Hodder and Stoughton*); "Universitatum et Eminentium Scholarum Index Generalis: Annuaire Général des Universités (The Year-book of the Universities)," Prof. R. de Montessus de Ballore (*Paris: Gauthier-Villars et Cie*); a translation, by Teixeira de Mattos, of another volume by Fabre, to be called "The Sacred Beetle" (*Hodder and Stoughton*); "Bird Behaviour," F. Finn, and "Insect Artisans and their Work," E. Step, both in the Nature Library (*Hutchinson and Co.*); "Telephonic Transmission, Theoretical and Applied," J. G. Hill; "Currency and Credit," R. G. Hawtrey; and a new edition—the fourth—of "The Principles of Electric-wave Telegraphy and Telephony," Prof. J. A. Fleming (*Longmans and Co.*).

THE latest Catalogue (No. 178) of Messrs. W. Heffer and Sons, Ltd., Cambridge, possesses a sentimental as well as a scientific value, seeing that it contains selections from the libraries of the late Canon Merle Norman and the late Sir William H. Preece. It should be of especial interest and use to readers of NATURE, being devoted entirely to books relating to science. Some 1300 works are listed under the following headings:—Agriculture and Husbandry, Anthropology and Ethnology, Botany, Chemistry, Geology, Mineralogy, and Palæontology, Zoology and Biology, Physiology, Anatomy, and Medicine, with the subsection of Dentistry, Mathematics and Physics, Astronomy, and Engineering. The catalogue is strong in books published in Germany, and therefore not easily procurable at the present time. An interesting item offered for sale is a collection of about eight hundred pamphlets dealing mainly with genetics and variation, formed by the late J. R. Gregory, of the University of Cambridge. Messrs. Heffer have also for disposal a complete set of the Reports of the Scientific Results of the *Challenger* Expedition, with letters by Sir C. Wyville Thomson, Sir John Murray, and Sir George S. Nares inserted.

OUR ASTRONOMICAL COLUMN.

Coming Conjunctions.—The planets Venus and Jupiter, which are now conspicuous objects in the evening sky, will be in conjunction in right ascension on May 25, Venus being 2° 7′ N. in declination. The moon, which will be new an hour after noon on May 29, will be in conjunction with Jupiter in the early morning of June 1, and with Venus in the evening of the same day, and the picture presented by the young moon and the two planets in the evenings of May 31 and June 1 may be of interest, though the conjunctions are not close. Venus will make close conjunction with Saturn on July 2, when the distance between the two objects will be only 10′. The appearance of these three planets so near together in the evening sky is noteworthy.

Mars.—A memoir on Mars from the pen of Mr. Harold Thomson, president of the British Astronomical Association, appears in *Scientia* for May. Mr. Thomson narrates concisely the facts known about the planet from observation, and takes the very proper view that it is not specially the function of the astronomer to indulge in speculations as to the possibility of inhabitants of other worlds based on such facts, but only to collect them. Nevertheless, he makes the point that the changes in the form of the dark markings and in their positions may represent changes on the surface of the planet which have analogies on our earth in the destruction of large forest areas, the ploughing up of vast tracts of land, or the changes caused by the operations of husbandry, and this may supply arguments to those who assert the existence of intelligent beings on Mars of as great weight as those furnished by the canals. The author gives no definitive opinion of his own on the question, but suggests that further observation may lead to substantial increase in our knowledge of the physical conditions of the planet.

AVIATION AND WEATHER.

ATLANTIC flying is steadily increasing in interest with the delay occasioned by the weather and by the increase in the number of competitors with the lapse of time. If any season of the year is favourable to a westerly flight it is the spring, and certainly just at present the prevailing east winds over the Atlantic near the surface of the sea would, in a measure, encourage the aspirants for a flight from the British Isles westwards. St. John's, Newfoundland, is evidently a badly chosen spot for a start on an easterly flight, if only for the reason that should a start be made the prevailing fogs would not allow of a safe return if for any reason a return is necessary. In a westerly flight from the European side certain localities must be avoided for landing, due to the well-known prevalence of fog. The shoal-water in the neighbourhood of St. John's is evidently an important factor in the formation of fog, and with easterly winds fogs seem to be much intensified. The United States naval seaplanes have accomplished their first stages as far as Newfoundland satisfactorily, but the next stage to the Azores is a more severe test. Adverse winds would materially hamper their flight, and at present it scarcely seems that contrary winds can be avoided on a part at least of the route to be chosen. American warships are stationed between Newfoundland and the Azores at such distances apart as must afford considerable confidence to those engaged in the flight. The brightness of the moon just now will be an additional advantage if winds and weather promise to be favourable.

Flight from England to Australia is now becoming as enticing to pilots of aircraft as the Atlantic flight. The *Times* of May 12 announces that "the preliminary conditions of the Australian Government's offer of a 10,000*l.* prize for the first Australian airman to fly from Great Britain to the Commonwealth have been arranged at a conference attended by representatives of Mr. Andrew Fisher, High Commissioner for Australia in London, the Royal Aero Club, and the Air Ministry." It is stipulated that the prize must be won before the close of 1920. The distance must be completed in 720 hours, and a disabled machine must not be towed more than 100 miles, and not more than twenty miles at one time. The probable route will include, amongst other places, Paris, Rome, Bagdad, Calcutta, Singapore, Batavia, and Port Darwin. There is plenty of work for meteorologists at present to decide the most favourable passage for aeronauts engaged in commercial aircraft traffic, and this second prize for a long route will require much thought and calculation. A good deal is known with regard to the winds near the earth's surface, but for a large portion of the route little has been ascertained as to the direction and velocity of the upper air.

Flying and the weather at sea by wireless reports from ships is dealt with by the Admiralty in a "Notice to Mariners" (No. 880, 1919). Arrangements are being made for the regular supply of information three times a day, at 1 a.m., 7 a.m., and 1 p.m., Greenwich mean time, when vessels are within a certain distance of stations being established in the north-eastern Atlantic. It is proposed to collect weather information by wireless from ships at sea all over the world, and it is hoped that the information received will be of use for the requirements of aircraft and admit of ships being supplied with trustworthy weather reports and forecasts wherever they may be. Much of the success of the undertaking depends on the rapidity of passing such data by wireless from the ship to the coast station and on to the Weather Office. Ships not supplying data are asked to exercise care not to interfere with the transmission of the wireless messages to the shore. At present the scheme is undertaken by the British Meteorological Office, and revision of the scheme will necessarily be made from time to time. It is proposed that ships communicating the weather information should send out a warning which is designed to notify ships within range that a report is about to be made, and that they should therefore avoid interfering. A wireless weather bulletin issued to ships may take the form of an official weather report giving the existing weather conditions, or an official weather forecast giving the probable future weather conditions. The "Notice to Mariners" will necessarily be studied by all vessels interested in the weather advance proposed.